

PRIVILEGEDAppendix: Special Session with Dr. V.N. Nikiforov  
and Dr. Olga Yampolskaya

A special informal session was held with Dr. V.N. Nikiforov and Dr. Olga Yampolskaya from 10:00 a.m. - 12:00 on Friday, October 10, 1986, at the Shemyakin Institute of Bioorganic Chemistry. Present at the session were: Dr. Sverdlov, Dr. Lederberg, Dr. Bennett, Dr. Marks, Dr. Woodward, Lynn Rusten and an interpreter from the Academy of Sciences of the U.S.S.R. Dr. Nikiforov and Dr. Yampolskaya from the Ministry of Health treated the victims of the 1979 Sverdlovsk outbreak. This appendix summarizes the information they shared about the Sverdlovsk epidemic.

Dr. V.N. Nikiforov said he was Chairman of the Department of Infectious Diseases, Central Institute for Post-Graduate Training, Moscow. His Department had 360 beds, and 280 M.D.'s were trained per year in infectious disease. Twenty-eight thousand physicians were trained per year in the Post-Graduate Institute which had 110 departments. Training periods were for 1 to 4 months. He said there were 1,200,000 M.D.'s in the U.S.S.R. Olga Yampolskaya said she was an assistant in Nikiforov's Department. She spent half of each day caring for patients and half of each day providing practical instruction for M.D.'s. She said her research was mostly involved in clinical observations on virus hepatitis, and the Institute of Virology performed the laboratory studies. Nikiforov's Department had two docents, six assistants (of which Yampolskaya was one) and twenty-two other M.D.'s.

Nikiforov said he was generally called to consult on all outbreaks of infectious disease in the U.S.S.R. In the Sverdlovsk epidemic of 1979, Nikiforov was called by Professor Korteov, Chairman of Infectious Disease in the Sverdlovsk Medical Institute. Nikiforov said he was called two to three days after the first two cases of acute severe illness were seen. When Nikiforov arrived in Sverdlovsk his first impression was that these patients had a very serious disease which was strange. He said his first impression was that it was due to an intoxication -- but the high fever made him consider infection. After being present at the first autopsy (on April 6 or 7), he thought it might be intestinal anthrax. Nikiforov said that Dr. Peter Burgasov, Deputy Minister of Health for the U.S.S.R., was involved in providing overall direction for dealing with the epidemic. Burgasov had retired one week prior to this meeting. Dr. Ivan Bezdenejnich, Chief Epidemiologist of the Russian Federation Department of Health, was the epidemiologist called to Sverdlovsk and responsible for accumulating the epidemiological data during the Sverdlovsk anthrax epidemic. Nikiforov said Bezdenejnich died during the month prior to this meeting. Yampolskaya said she learned about the epidemiologic data when she heard Bezdenejnich's presentation to Professor Matthew Meselson in August 1986.

In response to a question, Nikiforov indicated there were some instances of multiple cases in a single family, but did not have the exact data. These data were obtained by Bezdenejnich. Nikiforov said he had seen about 100 to 120 cases of gastrointestinal anthrax prior to the Sverdlovsk outbreak, and all had died. Thus, he said that fifteen of seventy-nine in the Sverdlovsk outbreak were saved was unusual. He believed more individuals ate contaminated meat than became ill and died. He believed illness was determined by dosage of anthrax organism and state of health of the host. He said variation in preparation of food might also be a determinant. Nikiforov said the Sverdlovsk epidemic took on a political coloring for him only when Meselson arrived in August 1986.

Nikiforov said that only one child - a six year old girl - fell ill. Yampolskaya gave the following age distribution of the victims:

| <u>Age</u>                     | <u>Number of Victims</u> |
|--------------------------------|--------------------------|
| under 20 (female child, age 6) | 1                        |
| 20 - 29                        | 11                       |
| 30 - 39                        | 10                       |
| 40 - 49                        | 32                       |
| 50 - 59                        | 10                       |
| over 59                        | 12                       |

Nikiforov said there were 17 dermal cases, and out of those 6 became generalized. He said the usual percentage of dermal cases that became generalized was 5%. He said that in the Soviet Union, dermal cases which were not serious did not regularly go to the hospital.

Of the lethal cases, none of the victims had skin lesions. Nikiforov said there was nothing unusual about this particular strain of anthrax. He said there were many degrees of virulence of strains in the Soviet Union, and confirmed that there was a correlation between the thickness of encapsulation and the virulence of the strain.

When asked if any examples of this strain had been preserved, Nikiforov said perhaps, but he did not know for sure. He did not preserve the strain. He explained there was a special institute that dealt with dangerous strains and that perhaps it had kept samples.

Nikiforov said he did not know how air samples had been taken in the hospital rooms of the victims, but said he thought the surfaces and dust had been analyzed. He said cultures of air samples were negative.

When asked if there had been other cases of anthrax in Sverdlovsk since the 1979 incident, Nikiforov said there had been no cutaneous cases in the city of Sverdlovsk. However, he said that in Sverdlovsk

oblast there were some cases every year, and that there had been three cases of cutaneous anthrax and cases of gastrointestinal and generalized form of the disease.

When asked if he had ever seen a case of pulmonary anthrax, Nikiforov responded that he had seen such cases in Albania, where he had worked for three years. When asked what the lungs looked like in those cases, he said the main symptom was hemorrhagic edema of the lungs, and that they did not resemble the brain shown in his autopsy slides the previous day. When asked if he was surprised that the patient with the severely affected brain did not have damaged lungs, Nikiforov responded that in that case the lungs were affected partly, that there was some hemorrhaging.

Woodward asked whether a vaccine program was begun. Nikiforov explained that the Soviets vaccinate two million people every year against anthrax. He said that thirty districts in the Sverdlovsk region were regularly vaccinated in the spring, but that if there were an outbreak, then the plan called for immediate vaccination regardless of the time of year. Nikiforov said, then, that in this case the vaccination time was changed to take place right after this outbreak, but he emphasized that this was not a special program of vaccination, but an additional vaccine distribution at that time, as called for in their plan. (There was some confusion in Nikiforov's answer to the questions on this topic.) When asked whether the vaccine against anthrax was effective in people, Nikiforov said it was his personal opinion that it was not effective.

Asked which antibiotics were used for prevention, Nikiforov said that for the families of the victims it was his personal opinion that antibiotics in the tetracycline family were most effective, though he had no statistics to validate this. He said there were some people who received antibiotics but fell ill. In fact, he said those people had very severe symptoms and did not survive. In response to another question, Nikiforov said there were variations in the time of onset when there was more than one case in a family. As best he could

recollect, Nikiforov said there were perhaps ten families which had more than one case. He said he could look up the exact number later. When asked by Marks if he had lectured about this outbreak, Nikiforov responded that he had lectured many times in Sverdlovsk about this epidemic and that he gave this lecture and the slides he had shown this group to many Soviet doctors.

Lederberg urged Nikiforov to publish this information in detail because it was so important and scientifically interesting.

Lederberg then spent a few minutes explaining to Nikiforov the news sources (New York Times article of July 16, 1980, was given to Nikiforov) of the rumors about the Sverdlovsk outbreak resulting from an accidental release of anthrax spores from a closed BW facility. Lederberg asked if they had heard these kinds of rumors when they were in Sverdlovsk. Yampolskaya responded that she did not hear these rumors in Sverdlovsk, but did hear them afterwards in Moscow.

Lederberg asked them how these rumors might have started. Sverdlov interjected with an anecdote of how he had taken in Soviet evacuees, whom he did not know, from Kiev to stay with him after the Chernobyl accident. One of these women was very concerned that her hair would fall out, and she asked for daily blood tests. She refused to believe that the results were negative, and insisted on independent confirmation. She also told Sverdlov that she was sure her friend in Kiev had lost her hair. Sverdlov reported that the friend later came to visit, and had a full head of hair. He told this story as an example of how rumors spread. Nikiforov agreed that the New York Times article about the Sverdlovsk outbreak which Lederberg showed him reflected similar kinds of rumors. Nikiforov related a story about a cholera epidemic, during which he heard reports of his own death over the radio.

In the New York Times article, a map of the Sverdlovsk region was reproduced showing Sverdlovsk and a town, Kashino, 18 miles SE, which was cited as a locale of additional cases of anthrax. Nikiforov said he did not know of such a town. Yampolskaya also indicated she had

not heard of any of the three towns indicated on the map reproduced in the New York Times -- Polevskoi, Sysert or Kashino.

When asked about the sanitation measures that were taken, Nikiforov said he did not know in great detail. He said they did burn old buildings where the contaminated animals had been kept. He said these were mostly in the suburbs, where people kept their private animals. He said the diseased animals were also burned, not buried. He said only one or two sheds within the city were burned, but many in the suburbs were burned. Yampolskaya recalled that they were in the south part of the city.

Lederberg said there were rumors that the hospital was taken over by military personnel. Nikiforov adamantly said there was not one military person there, not even one policeman. He said he thought the epidemic station did the burning, not the military. In response to a question, Nikiforov said these sheds were burned in the middle and end of April.

Sverdlov noted that it was not unusual for the military to be requested to help in some cases. He referred to a fire that took place in Zagorsk just a few days ago, at which he said military men were used to help fight it. Sverdlov said that was a natural thing and did not mean that the burned structures were military properties.

Woodward asked how dermal anthrax was treated. Nikiforov indicated he treated dermal lesions with penicillin -- 30 million units every 24 hours, until the fever disappeared and the dermal lesions regressed, usually in seven to ten days. Nikiforov said he believed patients with dermal lesions did not gain immunity to future infections.

Lederberg expressed his gratitude to Nikiforov and Yampolskaya for their time and willingness to discuss this outbreak in such great detail. The session adjourned at 12:00 p.m.

Lynn Rusten